

REMARKS

This application is a divisional of U.S. Patent Application Serial No. 09/814,915. This Preliminary Amendment is presented to limit the claims to non-elected genes resulting from a Restriction Requirement in the parent application. In the parent application, as a result of an interview with Examiner Li and Examiner Kemmerer (after consulting with Examiner Elliot), the Examiners agreed that Applicants could elect any 10 genes for prosecution, based on the argument that there is unity of invention among the recited genes in that the genes are linked by a clear common utility (e.g., special genes for identification of agonists and antagonists of PR) and by a common substantial structural feature (e.g., regulation of expression by PR, which infers a common structural feature). In further compliance with the Restriction Requirement in the parent application, Applicants have limited the claims in this divisional application to a new set of 10 genes from the original application.

In addition, Applicants have amended the specification to include the sequences that were previously incorporated by reference, as was done in the parent application. First, the specification has been amended to include a Sequence Listing, which includes a sequence identifier for each of the genes listed in Tables 1-19. The Sequence Listing was produced using the public database accession numbers that were provided in Tables 1-19 and that were publically available as of the filing date of the present application. Enclosed with this response are paper and computer readable forms of the Sequence Listing. Pursuant to 37 CFR § 1.825(a) and (b) and § 1.821(f), Applicant's agent hereby asserts that the content of the paper and computer readable copies of SEQ ID NO:1 through SEQ ID NO:108 submitted herewith are identical and include no new matter.

The requisite declaration executed by the below-signed agent is also enclosed herewith, which states that the amendatory material consists of the same material incorporated by reference into the specification.

In addition, in order to insert into the specification the requisite sequence identifiers corresponding to the newly provided Sequence Listing, Tables 1-16 have been amended. Tables 17-19 merely repeat the genes already referenced in Tables 1-16 and since Tables 17-19 are not claimed in any of the pending original claims, Tables 17-19 have not been amended to include the sequence identifiers.

Also as in the parent application, Table 3 has been amended to delete the row reciting Accession No. M27436, tissue factor gene (SEQ ID NO:7). Inclusion of this row in Table 3 is an obvious clerical error for the following reasons. As discussed in the specification on page 18, lines 20-27, Tables 1-7 include all genes that are believed to be newly discovered to be regulated by progesterone receptors by the present inventors. Tables 9-15 include all of the genes from Tables 1-7, respectively, and additionally include genes that were identified by the present inventors that had previously been identified to be regulated generally by progesterone. Genes that were previously known to be regulated by progesterone and for which a publication exists are also set forth separately in Table 8. It is noted that even though the genes in Table 8 were known to be regulated by progesterone, the isoform specificity of these genes was not previously known. Tissue factor gene (SEQ ID NO:7) appears in each of Tables 3, 8 and 11, which is not correct. As shown in Table 8 by reference to the gene and a publication, this gene was previously known to be regulated by progesterone (although not known to selectively regulate PR-B) and therefore, this gene does not belong in Table 3. The deletion of this row from Table 3 therefore does not introduce new matter, but corrects an obvious clerical error. Applicants have reviewed the tables and believe that this is the only such error in Tables 1-7.

Respectfully submitted,

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Table 1. Genes selectively upregulated by PR-A

Accession No.	Fold Increase	Gene Name
L43821 (<u>SEQ ID NO:3</u>)	4.7	enhancer of filamentation (HEF1)
L38487 (<u>SEQ ID NO:4</u>)	2.3	estrogen receptor-related protein (hERRa1)

Table 2. Genes selectively downregulated by PR-A

Accession No.	Fold Decrease	Gene Name
U44103 (<u>SEQ ID NO:5</u>)	-2.8	small GTP binding protein Rab9

Table 3. Genes selectively upregulated by PR-B.

Accession No.	Fold Increase	Gene Name
L13720 (SEQ ID NO:6)	~23.1	growth arrest-specific protein (gas6)
M27436 (SEQ ID NO:7)	~18.4	tissue factor gene
D79990 (SEQ ID NO:8)	10.2	KIAA0168 Ras association (RalGDS/AF-6) domain family 2 (RASSF2)
U01120 (SEQ ID NO:9)	~9.8	glucose-6-phosphatase
D25539 (SEQ ID NO:10)	~8	KIAA0040 gene
U37546 (SEQ ID NO:11)	~7.2	IAP homolog C (MIHC)
D87953 (SEQ ID NO:12)	6.8	RTP,DRG1,CAP43
M76180 (SEQ ID NO:13)	~6.5	aromatic amino acid decarboxylase (ddc)
M77140 (SEQ ID NO:14)	~6	pro-galanin
D50840 (SEQ ID NO:15)	~5.6	ceramide glucosyltransferase
HG2743-HT2846 (SEQ ID NO:16)	~5.1	Caldesmon 1 Non-Muscle
U76421 (SEQ ID NO:17)	~4.7	dsRNA adenosine deaminase DRADA2b
U40572 (SEQ ID NO:18)	4.6	beta2-syntrophin (SNT B2)
S69189 (SEQ ID NO:19)	~4.5	peroxisomal acyl-coenzyme A oxidase
U44754 (SEQ ID NO:20)	4.4	PSE-binding factor PTF gamma subunit
U02081 (SEQ ID NO:21)	4.1	guanine nucleotide regulatory protein (NET1) oncogene ¹
D16227 (SEQ ID NO:22)	~4	BDP-1 (member of the recoverin family)
D17793 (SEQ ID NO:23)	~4	3-alpha hydroxysteroid dehydrogenase type IIb
U83461 (SEQ ID NO:24)	3.7	putative copper uptake protein (hCTR2)
M23254 (SEQ ID NO:25)	3.6	Ca2+-activated neutral protease (CANP)
D15050 (SEQ ID NO:26)	3.6	transcription factor AREB6
HG2167-HT2237 (SEQ ID NO:27)	~3.5	Protein Kinase Ht31, Camp-Dependent
D10040 (SEQ ID NO:28)	3.5	long-chain acyl-CoA synthetase
D31887 (SEQ ID NO:29)	3.5	KIAA0062 gene
X60673 (SEQ ID NO:30)	3.4	adenylate kinase 3
U45878 (SEQ ID NO:31)	~3.3	inhibitor of apoptosis protein 1
L09229 (SEQ ID NO:32)	3.3	long-chain acyl-coenzyme A synthetase (FACL1)
U09646 (SEQ ID NO:33)	3.2	carnitine palmitoyltransferase II precursor (CPT1)
D31716 (SEQ ID NO:34)	3.2	GC box bindig protein
M37400 (SEQ ID NO:35)	3.1	cytosolic aspartic aminotransferase
X59834 (SEQ ID NO:36)	3.1	glutamine synthase
D78335 (SEQ ID NO:37)	3.1	uridine monophosphate kinase (UMPK)
U41387 (SEQ ID NO:38)	3	RNA helicase II/Gu)
U07919 (SEQ ID NO:39)	3	aldehyde dehydrogenase 6
M69013 (SEQ ID NO:40)	2.9	guanine nucleotide-binding regulatory protein (G- γ -alpha) ¹
HG2530-HT2626 (SEQ ID NO:41)	2.9	Adenylyl Cyclase-Associated Protein 2
U79288 (SEQ ID NO:42)	2.8	clone 23682
D10704 (SEQ ID NO:43)	2.6	choline kinase
Y08134 (SEQ ID NO:44)	2.6	ASM-like phosphodiesterase 3b
U33632 (SEQ ID NO:45)	2.6	two P-domain K ⁺ channel TWIK-1
M21154 (SEQ ID NO:46)	2.5	S-adenosylmethionine decarboxylase
U77949 (SEQ ID NO:47)	2.5	Cdc6-related protein (HsCDC6)

M95767 (SEQ ID NO:48)	~2.5	di-N-acetylchitobiase
D83781 (SEQ ID NO:49)	2.5	KIAA0197 gene
X98534 (SEQ ID NO:50)	2.5	vasodilator-stimulated phosphoprotein (VASP)
X53586 (SEQ ID NO:51)	2.5	Integrin α 6*
D80001 (SEQ ID NO:52)	2.4	KIAA0179 gene
L18960 (SEQ ID NO:53)	2.4	protein synthesis factor (eIF-4C)
D23673 (SEQ ID NO:54)	2.3	insulin receptor substrate-1 (IRS-1)
J02888 (SEQ ID NO:55)	2.3	quinone oxidoreductase (NQO2)
D63487 (SEQ ID NO:56)	2.3	KIAA0153 gene
U14603 (SEQ ID NO:57)	2.3	protein-tyrosine phosphatase (HU-PP-1)
L41887 (SEQ ID NO:58)	2.3	splicing factor, arginine/serine-rich 7 (SFRS7)
M92287 (SEQ ID NO:59)	2.2	cyclin D3 (CCND3)
X61123 (SEQ ID NO:60)	2.2	BTG1
M95929 (SEQ ID NO:61)	2.1	homeobox protein (PHOX1)
U32944 (SEQ ID NO:62)	2.1	cytoplasmic dynein light chain 1 (hdc1)
D79994 (SEQ ID NO:63)	2.1	KIAA0172 gene (similar to ankyrin)
D89377 (SEQ ID NO:64)	2	MSX-2
U90878 (SEQ ID NO:65)	2	LIM domain protein CLP-36
U97105 (SEQ ID NO:66)	2	N2A3 dihydropyrimidinase related protein-2
L40379 (SEQ ID NO:67)	2	thyroid receptor interactor (TRIP10)
J05459 (SEQ ID NO:68)	1.9	glutathione transferase M3 (GSTM3)
L42542 (SEQ ID NO:69)	1.8	RLIP76 (ralA binding protein 1)
D42047 (SEQ ID NO:70)	1.7	KIAA0089 similar to glycerol-3-phosphate dehydrogenase 1
M84349 (SEQ ID NO:71)	1.7	transmembrane protein (CD59)
D43950 (SEQ ID NO:72)	1.6	KIAA0098 T-COMPLEX PROTEIN 1 (TCP-1-EPSILON)
M15796 (SEQ ID NO:73)	1.6	proliferating cell nuclear antigen (PCNA)

Table 4. Genes selectively downregulated by PR-B

Accession No.	Fold Decrease	Gene Name
U07225 (SEQ ID NO:74)	~-4.3	P2U nucleotide receptor
M27492 (SEQ ID NO:75)	~-3.4	interleukin 1 receptor mRNA
Y08682 (SEQ ID NO:76)	-3.1	carnitine palmitoyltransferase I type I
U29091 (SEQ ID NO:77)	~-2.9	selenium-binding protein (hSBP)
X79683 (SEQ ID NO:78)	-2.6	beta2 laminin
AB000220 (SEQ ID NO:79)	-2.6	semaphorin E ¹
HG2197-HT2267 (SEQ ID NO:80)	~-2.5	Collagen, Type VII, Alpha 1
U65011 (SEQ ID NO:81)	~-2.5	preferentially expressed antigen of melanoma (PRAME)
M18391 (SEQ ID NO:82)	~-2.3	tyrosine kinase receptor (eph)
X71874 (SEQ ID NO:83)	-1.9	proteasome-like subunit MECL-1

Table 5. Genes up or downregulated by both PR-A and PR-B

Accession No.	Fold	Gene Name
X51521 (SEQ ID NO:84)	~22.6	Ezrin*
U70663 (SEQ ID NO:85)	~7.5	zinc finger transcription factor EZF
U16799 (SEQ ID NO:86)	6.1	Na,K-ATPase beta-1 subunit
X65614 (SEQ ID NO:87)	3.6	calcium-binding protein S100P
D86962 (SEQ ID NO:88)	2.9	Grb10
S81914 (SEQ ID NO:89)	2.6	IEX-1=radiation-inducible immediate-early
U00115 (SEQ ID NO:90)	2.4	bcl-6
M69225 (SEQ ID NO:91)	~-3.5	bullous pemphigoid antigen (plakin family)
U90907 (SEQ ID NO:92)	-3.2	clone 23907
M92357 (SEQ ID NO:93)	-2.1	tumor necrosis factor alpha-induced protein 2 (B94)

Table 6. Gene that is reciprocally regulated (upregulated by PR-B, downregulated by PR-A)

Accession No.	Fold	Gene Name
X53586 (SEQ ID NO:51)	2.5	Integrin α 6*

Table 7. Group of genes for which the expression level is different depending on which isoform is present.

Accession No.	Fold	Gene Name
L13720 (SEQ ID NO:6)	~23.1	growth arrest-specific protein (gas6)
D79990 (SEQ ID NO:8)	10.2	KIAA0168 Ras association (RalGDS/AF-6) domain family 2 (RASSF2)
U01120 (SEQ ID NO:9)	~9.8	glucose-6-phosphatase
U37546 (SEQ ID NO:11)	~7.2	IAP homolog C (MIHC)
D87953 (SEQ ID NO:12)	6.8	RTP,DRG1,CAP43
M76180 (SEQ ID NO:13)	~6.5	aromatic amino acid decarboxylase (ddc)
M77140 (SEQ ID NO:14)	~6	pro-galanin
D50840 (SEQ ID NO:15)	~5.6	ceramide glucosyltransferase
HG2743-HT2846 (SEQ ID NO:16)	~5.1	Caldesmon 1 Non-Muscle
U76421 (SEQ ID NO:17)	~4.7	dsRNA adenosine deaminase DRADA2b
U40572 (SEQ ID NO:18)	4.6	beta2-syntrophin (SNT B2)
S69189 (SEQ ID NO:19)	~4.5	peroxisomal acyl-coenzyme A oxidase
U44754 (SEQ ID NO:20)	4.4	PSE-binding factor PTF gamma subunit
U02081 (SEQ ID NO:21)	4.1	guanine nucleotide regulatory protein (NET1) oncogene
D16227 (SEQ ID NO:22)	~4	BDP-1 (member of the recoverin family)
D17793 (SEQ ID NO:23)	~4	3-alpha hydroxysteroid dehydrogenase type IIb
U83461 (SEQ ID NO:24)	3.7	putative copper uptake protein (hCTR2)
M23254 (SEQ ID NO:25)	3.6	Ca2+-activated neutral protease (CANP)
D15050 (SEQ ID NO:26)	3.6	transcription factor AREB6
HG2167-HT2237 (SEQ ID NO:27)	~3.5	Protein Kinase Ht31, Camp-Dependent
D10040 (SEQ ID NO:28)	3.5	long-chain acyl-CoA synthetase
D31887 (SEQ ID NO:29)	3.5	KIAA0062 gene
X60673 (SEQ ID NO:30)	3.4	adenylate kinase 3
U45878 (SEQ ID NO:31)	~3.3	inhibitor of apoptosis protein 1
L09229 (SEQ ID NO:32)	3.3	long-chain acyl-coenzyme A synthetase (FACL1)
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M37400 (SEQ ID NO:35)	3.1	cytosolic aspartate aminotransferase
X59834 (SEQ ID NO:36)	3.1	glutamine synthase
D78335 (SEQ ID NO:37)	3.1	uridine monophosphate kinase (UMPK)
U41387 (SEQ ID NO:38)	3	RNA helicase II/Gu
U07919 (SEQ ID NO:39)	3	aldehyde dehydrogenase 6
M69013 (SEQ ID NO:40)	2.9	guanine nucleotide-binding regulatory protein (G- γ -alpha)
HG2530-HT2626 (SEQ ID NO:41)	2.9	Adenylyl Cyclase-Associated Protein 2
U79288 (SEQ ID NO:42)	2.8	clone 23682
D10704 (SEQ ID NO:43)	2.6	choline kinase
Y08134 (SEQ ID NO:44)	2.6	ASM-like phosphodiesterase 3b
U33632 (SEQ ID NO:45)	2.6	two P-domain K ⁺ channel TWIK-1
M21154 (SEQ ID NO:46)	2.5	S-adenosylmethionine decarboxylase
U77949 (SEQ ID NO:47)	2.5	Cdc6-related protein (HsCDC6)
M95767 (SEQ ID NO:48)	~2.5	di-N-acetylchitobiase
D83781 (SEQ ID NO:49)	2.5	KIAA0197 gene
X98534 (SEQ ID NO:50)	2.5	vasodilator-stimulated phosphoprotein (VASP)
D80001 (SEQ ID NO:52)	2.4	KIAA0179 gene
L18960 (SEQ ID NO:53)	2.4	protein synthesis factor (eIF-4C)
D23673 (SEQ ID NO:54)	2.3	insulin receptor substrate-1 (IRS-1)
J02888 (SEQ ID NO:55)	2.3	quinone oxidoreductase (NQO2)
D63487 (SEQ ID NO:56)	2.3	KIAA0153 gene

U14603 (SEQ ID NO:57)	2.3	protein-tyrosine phosphatase (HU-PP-1)
L41887 (SEQ ID NO:58)	2.3	splicing factor, arginine-serine-rich 7 (SFRS7)
M92287 (SEQ ID NO:59)	2.2	cyclin D3 (CCND3)
X61123 (SEQ ID NO:60)	2.2	BTG1
M95929 (SEQ ID NO:61)	2.1	homeobox protein (PHOX1)
U32944 (SEQ ID NO:62)	2.1	cytoplasmic dynein light chain 1 (hdc1)
D79994 (SEQ ID NO:63)	2.1	KIAA0172 gene (similar to ankyrin)
D89377 (SEQ ID NO:64)	2	MSX-2
U90878 (SEQ ID NO:65)	2	LIM domain protein CLP-36
U97105 (SEQ ID NO:66)	2	N2A3 dihydropyrimidinase related protein-2
L40379 (SEQ ID NO:67)	2	thyroid receptor interactor (TRIP10)
J05459 (SEQ ID NO:68)	1.9	glutathione transferase M3 (GSTM3)
L42542 (SEQ ID NO:69)	1.8	RLIP76 (ralA binding protein 1)
D42047 (SEQ ID NO:70)	1.7	KIAA0089 similar to glycerol-3-phosphate dehydrogenase 1
M84349 (SEQ ID NO:71)	1.7	transmembrane protein (CD59)
D43950 (SEQ ID NO:72)	1.6	KIAA0098 T-COMPLEX PROTEIN 1 (TCP-1-EPSILON)
M15796 (SEQ ID NO:73)	1.6	proliferating cell nuclear antigen (PCNA)
U07225 (SEQ ID NO:74)	~-4.3	P2U nucleotide receptor
M27492 (SEQ ID NO:75)	~-3.4	interleukin 1 receptor mRNA
Y08682 (SEQ ID NO:76)	-3.1	carnitine palmitoyltransferase I type I
U29091 (SEQ ID NO:77)	~-2.9	selenium-binding protein (hSBP)
X79683 (SEQ ID NO:78)	-2.6	beta2 laminin.
AB000220 (SEQ ID NO:79)	-2.6	semaphorin E
HG2197-HT2267 (SEQ ID NO:80)	~-2.5	Collagen, Type VII, Alpha 1
U65011 (SEQ ID NO:81)	~-2.5	preferentially expressed antigen of melanoma (PRAME)
M18391 (SEQ ID NO:82)	~-2.3	tyrosine kinase receptor (eph)
X71874 (SEQ ID NO:83)	-1.9	proteasome-like subunit MECL-1
L43821 (SEQ ID NO:3)	4.7	enhancer of filamentation (HEF1)
L38487 (SEQ ID NO:4)	2.3	estrogen receptor-related protein (hERRa1)
D25539 (SEQ ID NO:10)	~-8	KIAA0040 gene

Table 8. Genes encoding products previously reported to be regulated by progesterone

Accession no.	Gene Name	Cell or tissue type	Isoform
U26726 (SEQ ID NO:94) 2	11-beta-hydroxysteroid dehydrogenase type 2 tissue factor gene	endometrial stromal cells, endometrial cancer cells, breast cancer cells	Both ¹
M7436 (SEQ ID NO:7) U42031 (SEQ ID NO:95)	progesterone receptor-associated FKBP54	endometrium	PR-B only ² Both ³
M68516 (SEQ ID NO:96) U43185 (SEQ ID NO:97) X52730 (SEQ ID NO:98)	PCI gene (plasminogen activator inhibitor) Stat5A phenylethanolamine n-methyltransferase (PNMT)	endometrial stromal cells breast cancer cells adrenal medulla	PR-B only ⁴ PR-B only ⁵ PR-B only ⁶
M69043 (SEQ ID NO:99) AF002020 (SEQ ID NO:100) D00017 (SEQ ID NO:101) D25328 (SEQ ID NO:102)	MAD-3 encoding IkB-alpha Niemann-Pick C disease (NPC1) lipocortin II (calpastatin I) platelet-type phosphofructokinase	macrophage cells and endometrium granulosa cells endometrial cancer cells breast cancer cells, intestinal epithelium, granulosa cells liver	Both ⁷ PR-B only ⁸ PR-B only ⁹ PR-B only ¹⁰
M80254 (SEQ ID NO:103) HG4069-HT4339_s_at (SEQ ID NO:104) Z50781 (SEQ ID NO:105) 88	cyclophilin isoform (hCyp3) Monocyte Chemotactic Protein 1 delta sleep inducing peptide (related to TSC-22)	endometrial cells and breast cancer cells breast cancer cells	PR-B only ¹¹ PR-A only ¹² PR-A only ¹³

References

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12. Kelly et al., *Biochem Biophys Res Commun*, **239**(2):557-61 (1997)
13. Kester et al., *J Biol Chem*, **272**:16637-43 (1997)

Table 9. Genes selectively upregulated by PR-A

Accession No.	Fold Increase	Gene Name
L43821 (SEQ ID NO:3)	4.7	enhancer of filamentation (HEF1)
Z23115 (SEQ ID NO:106)	3.2	Bcl-x*
Z50781 (SEQ ID NO:105)	2.5	delta sleep inducing peptide (highly related to TSC-22)
L38487 (SEQ ID NO:4)	2.3	estrogen receptor-related protein (hERRa1)

Table 10. Genes selectively downregulated by PR-A

Accession No.	Fold Decrease	Gene Name
HG4069-HT4339 (<u>SEQ ID NO:104</u>)	~-7.4	Monocyte Chemotactic Protein 1
U44103 (<u>SEQ ID NO:5</u>)	-2.8	small GTP binding protein Rab9

Table 11. Genes selectively upregulated by PR-B

Accession No.	Fold Increase	Gene Name
L13720 (SEQ ID NO:6)	~23.1	growth arrest-specific protein (gas6)
M27436 (SEQ ID NO:7)	~18.1	tissue factor gene
D79990 (SEQ ID NO:8)	10.2	KIAA0168 Ras association (RalGDS/AF-6) domain family 2 (RASSF2)
U01120 (SEQ ID NO:9)	~9.8	glucose-6-phosphatase
D25539 (SEQ ID NO:10)	~8	KIAA0040 gene
U37546 (SEQ ID NO:11)	~7.2	IAP homolog C (MIHC)
D87953 (SEQ ID NO:12)	6.8	RTP,DRG1,CAP43
M76180 (SEQ ID NO:13)	~6.5	aromatic amino acid decarboxylase (ddc)
M83667 (SEQ ID NO:107)	6.4	NF-IL6 (C/EBPbeta)
M68516 (SEQ ID NO:96)	~6.2	PCI gene (plasminogen activator inhibitor 3)
U43185 (SEQ ID NO:97)	~6.1	Stat5A
M77140 (SEQ ID NO:14)	~6	pro-galanin
D50840 (SEQ ID NO:15)	~5.6	ceramide glucosyltransferase
HG2743-HT2846 (SEQ ID NO:16)	~5.1	Caldesmon 1 Non-Muscle
U76421 (SEQ ID NO:17)	~4.7	dsRNA adenosine deaminase DRADA2b
U40572 (SEQ ID NO:18)	4.6	beta2-syntrophin (SNT B2)
S69189 (SEQ ID NO:19)	~4.5	peroxisomal acyl-coenzyme A oxidase
U44754 (SEQ ID NO:20)	4.4	PSE-binding factor PTF gamma subunit
X52730 (SEQ ID NO:98)	4.4	phenylethanolamine n-methyltransferase (PNMT)
U02081 (SEQ ID NO:21)	4.1	guanine nucleotide regulatory protein (NET1) oncogene ¹
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D17793 (SEQ ID NO:23)	~4	3-alpha hydroxysteroid dehydrogenase type IIb
U83461 (SEQ ID NO:24)	3.7	putative copper uptake protein (hCTR2)
M23254 (SEQ ID NO:25)	3.6	Ca2+-activated neutral protease (CANP)
D15050 (SEQ ID NO:26)	3.6	transcription factor AREB6
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D10040 (SEQ ID NO:28)	3.5	long-chain acyl-CoA synthetase
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X59834 (SEQ ID NO:36)	3.1	glutamine synthase
D78335 (SEQ ID NO:37)	3.1	uridine monophosphate kinase (UMPK)
U41387 (SEQ ID NO:38)	3	RNA helicase II/Gu)
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M69013 (SEQ ID NO:40)	2.9	guanine nucleotide-binding regulatory protein (G- γ -alpha) ¹
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U77949 (SEQ ID NO:47)	2.5	Cdc6-related protein (HsCDC6)
M95767 (SEQ ID NO:48)	~2.5	di-N-acetylchitobiase
D83781 (SEQ ID NO:49)	2.5	KIAA0197 gene
X98534 (SEQ ID NO:50)	2.5	vasodilator-stimulated phosphoprotein (VASP)
X53586 (SEQ ID NO:51)	2.5	Integrin α 6*
D80001 (SEQ ID NO:52)	2.4	KIAA0179 gene
L18960 (SEQ ID NO:53)	2.4	protein synthesis factor (eIF-4C)
D23673 (SEQ ID NO:54)	2.3	insulin receptor substrate-1 (IRS-1)
J02888 (SEQ ID NO:55)	2.3	quinone oxidoreductase (NQO2)
D63487 (SEQ ID NO:56)	2.3	KIAA0153 gene
U14603 (SEQ ID NO:57)	2.3	protein-tyrosine phosphatase (HU-PP-1)
L41887 (SEQ ID NO:58)	2.3	splicing factor, arginine/serine-rich 7 (SFRS7)
M92287 (SEQ ID NO:59)	2.2	cyclin D3 (CCND3)
X61123 (SEQ ID NO:60)	2.2	BTG1
AF002020 (SEQ ID NO:100)	2.1	Niemann-Pick C disease (NPC1)
M95929 (SEQ ID NO:61)	2.1	homeobox protein (PHOX1)
U32944 (SEQ ID NO:62)	2.1	cytoplasmic dynein light chain 1 (hDlc1)
D79994 (SEQ ID NO:63)	2.1	KIAA0172 gene (similar to ankyrin)
D89377 (SEQ ID NO:64)	2	MSX-2
U90878 (SEQ ID NO:65)	2	LIM domain protein CLP-36
U97105 (SEQ ID NO:66)	2	N2A3 dihydropyrimidinase related protein-2
L40379 (SEQ ID NO:67)	2	thyroid receptor interactor (TRIP10)
D00017 (SEQ ID NO:101)	1.9	lipocortin II
J05459 (SEQ ID NO:68)	1.9	glutathione transferase M3 (GSTM3)
D25328 (SEQ ID NO:102)	1.9	platelet-type phosphofructokinase
M80254 (SEQ ID NO:103)	1.9	cyclophilin isoform (hCyp3)
L42542 (SEQ ID NO:69)	1.8	RLIP76 (ralA binding protein 1)
D42047 (SEQ ID NO:70)	1.7	KIAA0089 similar to glycerol-3-phosphate dehydrogenase 1
M84349 (SEQ ID NO:71)	1.7	transmembrane protein (CD59)
D43950 (SEQ ID NO:72)	1.6	KIAA0098 T-COMPLEX PROTEIN 1 (TCP-1-EPSILON)
M15796 (SEQ ID NO:73)	1.6	proliferating cell nuclear antigen (PCNA)

Table 12. Genes selectively downregulated by PR-B

Accession No.	Fold Decrease	Gene Name
U07225 (<u>SEQ ID NO:74</u>)	~-4.3	P2U nucleotide receptor
M27492 (<u>SEQ ID NO:75</u>)	~-3.4	interleukin 1 receptor mRNA
Y08682 (<u>SEQ ID NO:76</u>)	-3.1	carnitine palmitoyltransferase I type I
U29091 (<u>SEQ ID NO:77</u>)	~-2.9	selenium-binding protein (hSBP)
X79683 (<u>SEQ ID NO:78</u>)	-2.6	beta2 laminin
AB000220 (<u>SEQ ID NO:79</u>)	-2.6	semaphorin E ¹
HG2197-HT2267 (<u>SEQ ID NO:80</u>)	~-2.5	Collagen, Type Vii, Alpha 1
U65011 (<u>SEQ ID NO:81</u>)	~-2.5	preferentially expressed antigen of melanoma (PRAME)
M18391 (<u>SEQ ID NO:82</u>)	~-2.3	tyrosine kinase receptor (eph)
X71874 (<u>SEQ ID NO:83</u>)	-1.9	proteasome-like subunit MECL-1

Table 13. Genes up or downregulated by progesterone via both PR-A and PR-B

Accession No.	Fold	Gene Name
U26726 (SEQ ID NO:94)	~22.6	11-beta-hydroxysteroid dehydrogenase type 2
X51521 (SEQ ID NO:84)	12.7	Ezrin*
U42031 (SEQ ID NO:95)	9.4	progesterone receptor-associated FKBP54 ¹
U70663 (SEQ ID NO:85)	~7.5	zinc finger transcription factor EZF
U16799 (SEQ ID NO:86)	6.1	Na,K-ATPase beta-1 subunit
M69043 (SEQ ID NO:99)	4.2	MAD-3 (IkB-alpha)
X65614 (SEQ ID NO:87)	3.6	calcium-binding protein S100P
D86962 (SEQ ID NO:88)	2.9	Grb10
S81914 (SEQ ID NO:89)	2.6	IEX-1=radiation-inducible immediate-early
U00115 (SEQ ID NO:90)	2.4	bcl-6
M69225 (SEQ ID NO:91)	~-3.5	bullous pemphigoid antigen (plakin family)
U90907 (SEQ ID NO:92)	-3.2	clone 23907
J03241 (SEQ ID NO:108)	~-3	transforming growth factor-beta 3 (TGF-beta3)
M92357 (SEQ ID NO:93)	-2.1	tumor necrosis factor alpha-induced protein 2 (B94)

Table 14. Gene that is reciprocally regulated (upregulated by PR-B, downregulated by PR-A)

Accession No.	Fold	Gene Name
X53586 (<u>SEQ ID NO:51</u>)	2.5	Integrin α 6*

Table 15. Group of genes for which the expression level is different depending on which isoform is pr

Accession No.	Fold	Gene Name
L13720 (SEQ ID NO:6)	~23.1	growth arrest-specific protein (gas6)
M27436 (SEQ ID NO:7)	~18.1	tissue factor gene
D79990 (SEQ ID NO:8)	10.2	KIAA0168 Ras association (RalGDS/AF-6) domain family 2 (RASSF2)
U01120 (SEQ ID NO:9)	~9.8	glucose-6-phosphatase
U37546 (SEQ ID NO:11)	~7.2	IAP homolog C (MIHC)
D87953 (SEQ ID NO:12)	6.8	RTP,DRG1,CAP43
M76180 (SEQ ID NO:13)	~6.5	aromatic amino acid decarboxylase (ddc)
M77140 (SEQ ID NO:14)	~6	pro-galanin
D50840 (SEQ ID NO:15)	~5.6	ceramide glucosyltransferase
HG2743-HT2846 (SEQ ID NO:16)	~5.1	Caldesmon 1 Non-Muscle
U76421 (SEQ ID NO:17)	~4.7	dsRNA adenosine deaminase DRADA2b
U40572 (SEQ ID NO:18)	4.6	beta2-syntrophin (SNT B2)
S69189 (SEQ ID NO:19)	~4.5	peroxisomal acyl-coenzyme A oxidase
U44754 (SEQ ID NO:20)	4.4	PSE-binding factor PTF gamma subunit
U02081 (SEQ ID NO:21)	4.1	guanine nucleotide regulatory protein (NET1) oncogene
D16227 (SEQ ID NO:22)	~4	BDP-1 (member of the recoverin family)
D17793 (SEQ ID NO:23)	~4	3-alpha hydroxysteroid dehydrogenase type IIb
U83461 (SEQ ID NO:24)	3.7	putative copper uptake protein (hCTR2)
M23254 (SEQ ID NO:25)	3.6	Ca2+-activated neutral protease (CANP)
D15050 (SEQ ID NO:26)	3.6	transcription factor AREB6
HG2167-HT2237 (SEQ ID NO:27)	~3.5	Protein Kinase Ht31, Camp-Dependent
D10040 (SEQ ID NO:28)	3.5	long-chain acyl-CoA synthetase
D31887 (SEQ ID NO:29)	3.5	KIAA0062 gene
X60673 (SEQ ID NO:30)	3.4	adenylate kinase 3
U45878 (SEQ ID NO:31)	~3.3	inhibitor of apoptosis protein 1
L09229 (SEQ ID NO:32)	3.3	long-chain acyl-coenzyme A synthetase (FACL1)
U09646 (SEQ ID NO:33)	3.2	carnitine palmitoyltransferase II precursor (CPT1)
D31716 (SEQ ID NO:34)	3.2	GC box bindig protein
M37400 (SEQ ID NO:35)	3.1	cytosolic aspartate aminotransferase
X59834 (SEQ ID NO:36)	3.1	glutamine synthase
D78335 (SEQ ID NO:37)	3.1	uridine monophosphate kinase (UMPK)
U41387 (SEQ ID NO:38)	3	RNA helicase II/Gu)
U07919 (SEQ ID NO:39)	3	aldehyde dehydrogenase 6
M69013 (SEQ ID NO:40)	2.9	guanine nucleotide-binding regulatory protein (G- γ -alpha)
HG2530-HT2626 (SEQ ID NO:41)	2.9	Adenylyl Cyclase-Associated Protein 2
U79288 (SEQ ID NO:42)	2.8	clone 23682
D10704 (SEQ ID NO:43)	2.6	choline kinase
Y08134 (SEQ ID NO:44)	2.6	ASM-like phosphodiesterase 3b
U33632 (SEQ ID NO:45)	2.6	two P-domain K ⁺ channel TWIK-1
M21154 (SEQ ID NO:46)	2.5	S-adenosylmethionine decarboxylase
U77949 (SEQ ID NO:47)	2.5	Cdc6-related protein (HsCDC6)
M95767 (SEQ ID NO:48)	~2.5	di-N-acetylchitobiase
D83781 (SEQ ID NO:49)	2.5	KIAA0197 gene

X98534 (SEQ ID NO:50)	2.5	vasodilator-stimulated phosphoprotein (VASP)
D80001 (SEQ ID NO:52)	2.4	KIAA0179 gene
L18960 (SEQ ID NO:53)	2.4	protein synthesis factor (eIF-4C)
D23673 (SEQ ID NO:54)	2.3	insulin receptor substrate-1 (IRS-1)
J02888 (SEQ ID NO:55)	2.3	quinone oxidoreductase (NQO2)
D63487 (SEQ ID NO:56)	2.3	KIAA0153 gene
U14603 (SEQ ID NO:57)	2.3	protein-tyrosine phosphatase (HU-PP-1)
L41887 (SEQ ID NO:58)	2.3	splicing factor, arginine/serine-rich 7 (SFRS7)
M92287 (SEQ ID NO:59)	2.2	cyclin D3 (CCND3)
X61123 (SEQ ID NO:60)	2.2	BTG1
M95929 (SEQ ID NO:61)	2.1	homeobox protein (PHOX1)
U32944 (SEQ ID NO:62)	2.1	cytoplasmic dynein light chain 1 (hdc1)
D79994 (SEQ ID NO:63)	2.1	KIAA0172 gene (similar to ankyrin)
D89377 (SEQ ID NO:64)	2	MSX-2
U90878 (SEQ ID NO:65)	2	LIM domain protein CLP-36
U97105 (SEQ ID NO:66)	2	N2A3 dihydropyrimidinase related protein-2
L40379 (SEQ ID NO:67)	2	thyroid receptor interactor (TRIP10)
J05459 (SEQ ID NO:68)	1.9	glutathione transferase M3 (GSTM3)
L42542 (SEQ ID NO:69)	1.8	RLIP76 (ralA binding protein 1)
D42047 (SEQ ID NO:70)	1.7	KIAA0089 similar to glycerol-3-phosphate dehydrogenase 1
M84349 (SEQ ID NO:71)	1.7	transmembrane protein (CD59)
D43950 (SEQ ID NO:72)	1.6	KIAA0098 T-COMPLEX PROTEIN 1 (TCP-1-EPSILON)
M15796 (SEQ ID NO:73)	1.6	proliferating cell nuclear antigen (PCNA)
U07225 (SEQ ID NO:74)	~4.3	P2U nucleotide receptor
M27492 (SEQ ID NO:75)	~3.4	interleukin 1 receptor mRNA
Y08682 (SEQ ID NO:76)	-3.1	carnitine palmitoyltransferase I type I
U29091 (SEQ ID NO:77)	~-2.9	selenium-binding protein (hSBP)
X79683 (SEQ ID NO:78)	-2.6	beta2 laminin.
AB000220 (SEQ ID NO:79)	-2.6	semaphorin E
HG2197-HT2267 (SEQ ID NO:80)	~-2.5	Collagen, Type VII, Alpha 1
U65011 (SEQ ID NO:81)	~-2.5	preferentially expressed antigen of melanoma (PRAME)
M18391 (SEQ ID NO:82)	~-2.3	tyrosine kinase receptor (eph)
X71874 (SEQ ID NO:83)	-1.9	proteasome-like subunit MECL-1
L43821 (SEQ ID NO:3)	4.7	enhancer of filamentation (HEF1)
L38487 (SEQ ID NO:4)	2.3	estrogen receptor-related protein (hERRa1)
D25539 (SEQ ID NO:10)	~-8	KIAA0040 gene
HG4069-HT4339 (SEQ ID NO:104)	~-7.4	Monocyte Chemotactic Protein 1

Table 16. Genes encoding products involved in breast cancer or mammary gland development*.

Accession no.	Fold	Gene Name
L13720 (SEQ ID NO:6)	~23.1	growth arrest-specific protein (gas6)
M27436 (SEQ ID NO:7)	~18.1	tissue factor gene
M83667 (SEQ ID NO:107)	6.4	NF-IL6-beta (C/EBPbeta)*
M68516 (SEQ ID NO:96)	~6.2	PCI gene (plasminogen activator inhibitor)
U43185 (SEQ ID NO:97)	~6.1	Stat5A*
X65614 (SEQ ID NO:87)	3.6	calcium-binding protein S100P
X53586 (SEQ ID NO: 51)	2.5	Integrin α 6*
D89377 (SEQ ID NO:64)	2	MSX-2*
D00017 (SEQ ID NO:101)	1.9	lipocortin II (calpactin I)
U29091 (SEQ ID NO:77)	~2.9	selenium-binding protein (hSBP)
M69225 (SEQ ID NO:91)	~3.5	bullous pemphigoid antigen (plakin family)

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